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Removing Natural Forest From Timber Production: A New Challenge for the Development of Forest Industries in China

CLAUDE RENÉ HEIMO¹

Keywords: Natural forest; forest industry; China. FDK 7 : 906 : 907 : (51)

1. Forestry in China: A brief overview of problems and challenges

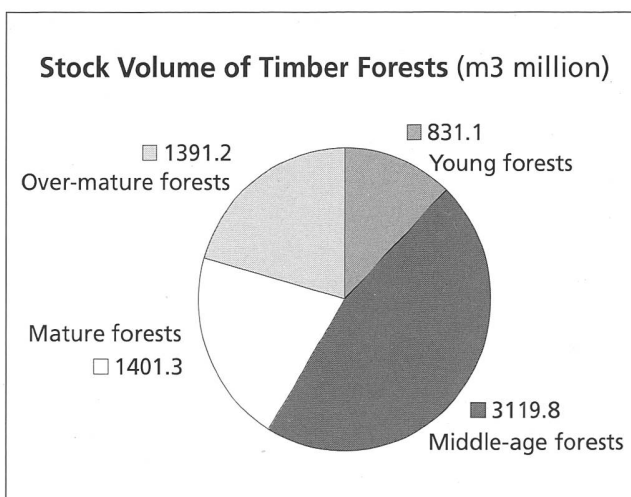
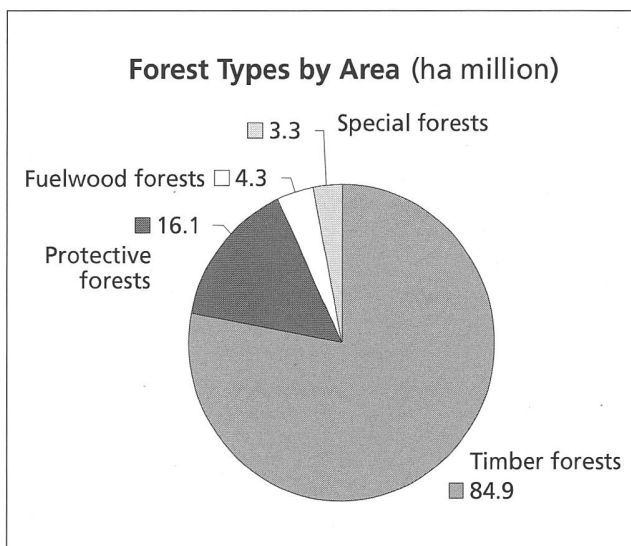
1.1 Forest sector background

Holding onto socialist ideology, China has embarked upon economic and political reforms since the early 1980s, which have given rise to a new group of transitional sectoral policies incorporating free-market systems to varying degrees. In the forestry sector, the ultimate objective of these transitional policies is to establish a thriving market economy capable of producing timber in a sustainable way, promoting economic growth, and improving welfare of the people while conserving forest resources and services. To achieve this objective, China has introduced gradual market-oriented reforms which include price and trade liberalization, decentralization, decentralization and clarification of property rights, and the promotion of private enterprise.

Forests in China are divided into two categories: 87 million hectares of natural forests, principally located in northwest and southwest regions and about 34 million hectares of plantation. Natural forests account for 92 percent of the standing volume, while plantations only account for 8 percent, since most of them are newly established (FAO, 1997).

Forestry in China is a major component of the national economy as it not only produces timber, but also provides employment, food and energy and promotes other economic development. In 1997, the forest sector employed over 2.5 million workers engaged in silviculture, plantation, logging, and the processing of timber and non-timber forest-products. Forestry is particularly important in the local economies of the north-western and south-western regions of China, where the annual output value of forest industries has been in the order of US\$ 5 billion since the mid-1980s, accounting for about one percent of China's total industrial output value. In 1997, China also became the third largest consumer of timber in the world. Due to an annual commercial timber consumption level of about 95 million m³, which exceeds the annual growth of forests by far, China now faces a widening imbalance between supply and demand for wood products. The deficit is being made up by imports and over-cutting, which contributes substantially to the loss of about half a million hectares of natural forests per year. In 1998 and 1999, the import value of wood products superseded the import value of petroleum and steel products for the first time. (HONG and LIN, 1999).

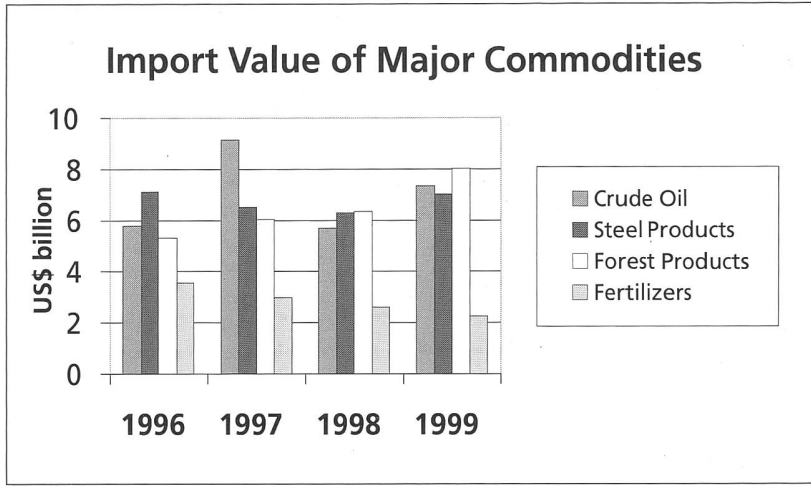
All these factors explain why the Chinese government has always attached great importance to forestry development and conservation. In recent years, under the guidance of new policies adapted to market economy principles, forestry in China has witnessed unprecedented development. Since the adoption of its policy of reform and openness towards the outside world, China's reforestation program has made impressive progress. With an average annual plantation rate of about 5 million hectares, the overall area of fast growing and high yielding plantations reached 34,4 million hectares in 1997, a rate which places China in pole position in the world. As a result of this effort, the area of land under forest has increased to nearly 14 percent.



1.2 Forest resources in crisis

In spite of these impressive achievements in terms of reforestation, China's forestry faces numerous challenges. First and foremost, for historical reasons, total forest resources are insufficient and harvestable natural forest resources have almost been exhausted. This factor is worsened by the fact that China still has one of the world's lowest forestland area per capita (0.11 hectares compared to the world average of

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0.77 hectares) and timber consumption rates with 0.12 m³/year/hab (FAO, 1997).

In fact, demand for industrial timber in China has actually increased and will continue to increase substantially alongside economic development. Although initiated before the launch of the new Natural Forest Conservation Program (NFCP) in August 1998, research sponsored by the project (HONG and LIN, 1999) indicates that the demand for industrial roundwood in China would reach 360 million m³ in 2010, while domestic supply would be restricted to about 174 million m³². In other words, the authors estimate that the supply shortfall will reach 186 million m³ (or 48.3 percent of the demand) within about 10 years. However, they also state that it is likely that this deficit will narrow to 60 million m³ provided that the vigorous development of the wood-based panel industry, recovery of waste paper and waste wood, extensive utilization of bamboo culms and the development of fast-growing industrial plantations could or will be sustained. It is nonetheless obvious that the gradual introduction of a logging ban in large tracts of natural forests (as specified in the NFCP) will further exacerbate China's timber deficits and reliance on imports.

Secondly, with the establishment of China's socialist market economy, forestry faces some sharp contradictions which seriously restrict forestry development and forest conservation. On the one hand, forestry shoulders the onerous tasks of conserving soil and water, combating desertification, conserving biodiversity, and preventing disasters. On the other hand, the fundamental requirements of the national economy are to meet market demand and secure an effective supply of forest products for the society. As a result, forestry, shouldering the dual responsibility of environmental and industrial development, with low comparative benefits, it is not very attractive to commercial investment. Besides, forest management is still too extensive and has not yet been brought fully in line with the sustainable utilization of forest resources. Also, the structure, scale and pattern of forest industries are somewhat irrational with backward technologies, heavy social burdens and staff living in poverty (WANG *et al.*, 1999).

Thirdly, there are many examples in China of market, policy and institutional failures which affect sustainable forest development and conservation programs. The heavy tax burden and the complexity of the forest tax system remain major impediments to the full participation of farmers in sustainable forestry development and operation under a free market economy. For instance, the average cost structure for timber

² HUO ZHIZHENG, 1997, in: The Development of China's Wood Industry by HONG JUSHENG and LIN FENGMIN, 1999.

buyers in six random counties or cities of the Fujian province was documented in KONG *et al.* in 1998 as follows:

- State taxes and fees: US\$ 10.39/m³ (22.9 percent of sales price);
- Silviculture and regeneration funds: US\$ 11.93/m³ (26.25 percent);
- County and township income: US\$ 3.54/m³ (7.8 percent);
- Village collective income: US\$ 5.60/m³ (12.3 percent);
- Production and operation costs: US\$ 11.49/m³ (25.3 percent);
- Actual profits of forest farmers including direct dividends in cash and indirect allocations: US\$ 2.74/m³ (6.0 percent).

Furthermore, property right issues remain problematic as farmers continue to be uncomfortable with the often inconsistent and volatile policy changes. And last but not least, institutional and regulatory frameworks have not yet been fully adapted to the requirements of a market economy (ZHANG, 1998).

1.3 Forest industries in crisis

Fourthly, structural reforms have so far had a limited impact on the state-owned forest industrial structure. This sector is still dominated by inefficient, interrelated and monopsonistic holding companies. Most of the industry assets are still concentrated in traditional logging and primary processing industries. Furthermore, their primary production efficiency is still limited by obsolete technology, high production costs and a lack of credit and investment. As a result, the technological quality of products remains limited, which in turn holds up export opportunities. Moreover, market information remains limited and semi-confidential, placing local enterprises, cooperatives and small holders at a potential competitive disadvantage and at the mercy of traders who may exploit their market position.

The net result is that the Chinese industrial sector does not operate at a profit. Data collected during the Third National Industry Survey indicate that nearly 40 percent of state forest enterprises were operating at a loss in 1995 with a cumulative debt estimated at RMB 960 million³. For the same year, interest payments amounted to about RMB 1,053 million, equivalent to 19 percent of overall sales profits. In fact, in 1995, the payment of interest was the second largest profit-reducing factor after administration costs (SFA-NFC CENTER, 1999). Furthermore, it is likely that China's probable entry into the WTO during the year 2000 will further exacerbate issues affecting the operation and competitiveness of state forest enterprises, as import tariff rates for processed forest products will be further reduced and non-tariff measures eased, while further logging restrictions in natural forests will be promoted. However, due to further trade liberalization, China's entry into the WTO will boost foreign private capital investment in the sector and, at the same time, increase Chinese processed forest products' access of overseas markets, furniture in particular.

Fifthly, government initiatives to improve the efficiency of state forest enterprises have created new, unexpected problems. Although they reflect a serious high-level political commitment to reform, attempts to corporatize state forest enterprises into shareholding companies have not been fully implemented. Furthermore, as a number of public social pro-

³ RMB 8,25 ≈ 1US\$.

grams are likely to be phased out, underemployment and layoffs will increase, due to the corporatization process and the reduction of government subsidies. As a result, many state-owned forest enterprises may not survive in a competitive environment, which will be further boosted by China's entry into the WTO.

1.4 Environmental degradation

All these factors have seriously damaged the structure and ecological functions of natural forests. Over the last 50 years, China's ecological environment has deteriorated quickly, inducing ecological disasters, which now occur ever more frequently. For example, forest coverage in the upper reaches of the Yangtze River has fallen from 40 percent in the early 1950s to a mere 10 percent today. Altogether, the standing volume of south-west forest regions decreased by 400 million m³ between the third and fourth inventories. Between 1990 and 1995, the logging rate in Heilongjiang, exceeded growth by 4.7 million m³ (SFA-NFC CENTER, 2000). All over China, the ability of forests to prevent erosion and conserve water has now greatly decreased.

2. The Natural Forest Conservation Program (NFCP) and its implications

2.1 Objectives

Prompted by the floods in the reaches of the Yangtze, Nenjiang and Songhuajiang Rivers in August 1998, the government now clearly recognizes the importance of protecting natural forests. Consequently, the following are now listed as urgent tasks and a priority for the forest sector: conserving natural forests, banning the harvesting of natural forests in the upper and middle reaches of the main rivers, afforesting mountains and returning converted forestland to forestry. It is this government commitment to sustainable development which prompted the launch of the Natural Forest Conservation Program in August 1998.

As currently designed and implemented, the NFCP has five major objectives which are to be met over the next ten years:

- Increasing the protection of natural forests to enhance environmental conservation and biodiversity protection;
- Introducing a progressive logging ban over 40 million hectares of protection forest;
- Improving forest management over 65 million hectares of state-owned natural forest;
- Developing new forest resources to address the country's increasing timber deficit and enhance protection;
- Supporting the economic development of local communities by providing funding for reforestation and developing alternative activities to redress the negative social and fiscal impacts of the logging ban, particularly the loss of jobs and tax revenues.

The NFCP will be implemented over 12 years in 17 provinces/autonomous regions located in the upper and middle reaches of the Yellow and Yangtse rivers and in North-east China, Inner Mongolia, Xinjiang and Hainan (WAGGENER, 1998). It is estimated that the total cost of the program will amount to RMB 100 billion, to be raised from financial bonds. About 10.5 billion

yuan have already been allocated to the program in 1998 and 1999 from the budget. Subsidized loans from international sources are sought to ensure the effective implementation of the program. The provinces are now issuing supplementary regulations for the NFCP's implementation at a local level (SFA-NFC CENTER, 2000).

2.2 Impacts of the NFCP: Conservation of forest resources

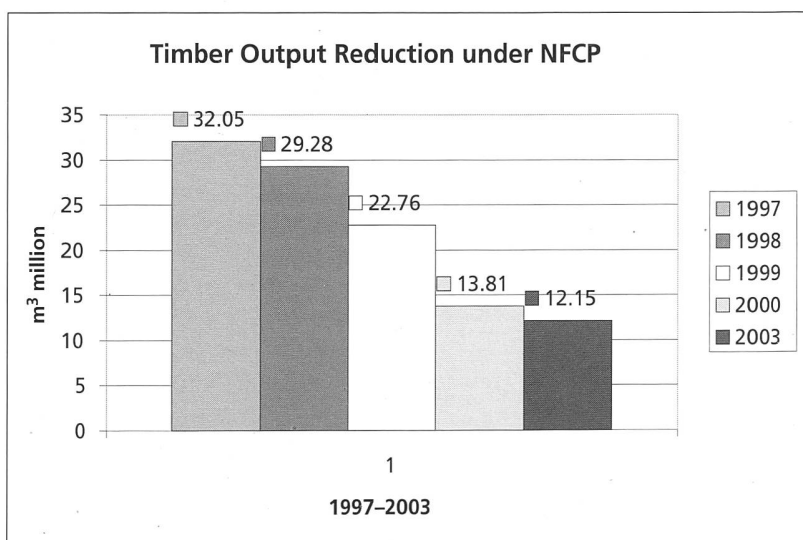
In view of the overall situation and long-term interests of national economic development, the implementation of the NFCP should first and foremost produce positive and far-reaching results as far as the sustainable development of the country is concerned. Protecting natural forests should:

- Contribute to the conservation and enhancement of biodiversity;
- Help control soil erosion and increase soil fertility;
- Help control desertification and flood damage;
- Increase water retention and availability and improve the quality of water resources;
- Improve air quality and public health.

By protecting natural forests, the NFCP is therefore expected to effectively slow down the deterioration of China's natural environment. It is also expected to release consequent financial pressure on the State's budget. The catastrophic floods of the Yangtze River in 1998 affected hundreds of millions of people, both directly and indirectly, and caused tremendous economic damage to areas along the river. After the floods, the State invested RMB 47 billion (approx. US\$ 6 billion) in new protection and conservation projects, the embankment project on the Yangtze River alone amounting to nearly RMB 8 billion (approx. US\$ 1 billion).

2.3 Impacts on the supply of forest products

By removing about 40 million ha of natural forests from timber production, China's timber supply deficit is expected to increase from 5 million m³ in 1997 to about 25 million m³ in 2003. The full implementation of the NFCP will therefore have a considerable impact on domestic wood processing enterprises: more than 100 State-owned large-scale forest harvesting enterprises will close, or will at least have to scale down their harvesting operations; this will result in a loss of about 1.2 million jobs in 2000. Production procedures in processing companies may well be disrupted by additional supply gaps or price increases. In fact, domestic production of wood-based



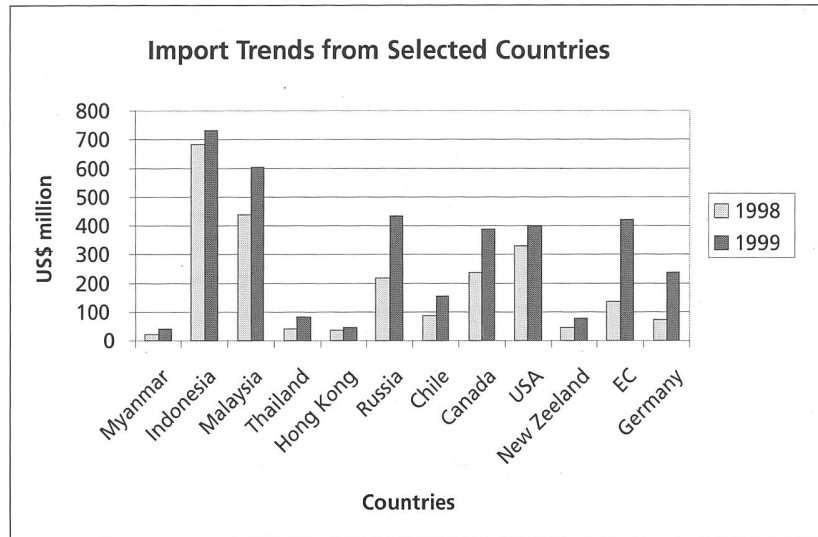
panels, sawn timber and wood chips has already decreased by 35.9%, 11.1% and 17.4% respectively between 1997 and 1998.

In addition, the introduction of logging bans and reinforced protection measures will significantly reduce the availability of fuelwood and non-timber forest products. This will result in additional loss of income-generating activities and jobs in areas already prone to poverty.

The impact on imports of the introduction of logging bans in selected regions is already apparent: with the launch of the NFCP and the subsequent reduction in logging and the adjustment of custom tariffs on logs and lumber imports, log imports in 1999 increased to a total of about 10 million m³, a threefold increase since 1996 (3.2 million m³). Specifically, the import of timber products in log form increased by over 100% in 1999 and in lumber form by 60%. In the same year, imports from Russia surged to nearly 4 million m³, and imports of high grade hardwood, for example, KD Beech and Oak from Europe and North America increased up to 5- to 8-fold to supply construction, decoration and flooring industries. Imports from New Zealand increased by 75% compared to the 1998 level. The two examples below clearly illustrate the impact of recent decisions to limit logging activities in natural forest under the new NFCP.

Because it will increase timber deficits and imports, there seems to be no doubt that the NFCP will also result in additional pressure being placed on the pristine tropical forest resources of neighboring countries (Malaysia, Indonesia, Laos, Cambodia, Vietnam, Thailand and Myanmar). This may lead to further deforestation or forest degradation if governments and national or transnational private forest enterprises oper-

ating in these countries do not take appropriate sustainable forest management and forest conservation measures. Compared to 1998, the value of imports from Thailand and the Philippines (countries with partial logging bans) nearly doubled in 1999, while the value of imports from Malaysia increased by 35%.



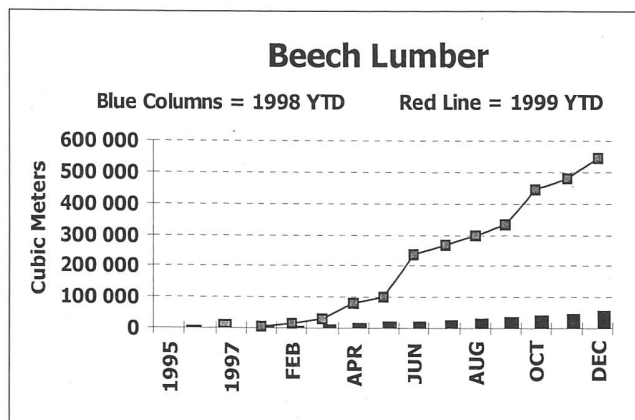
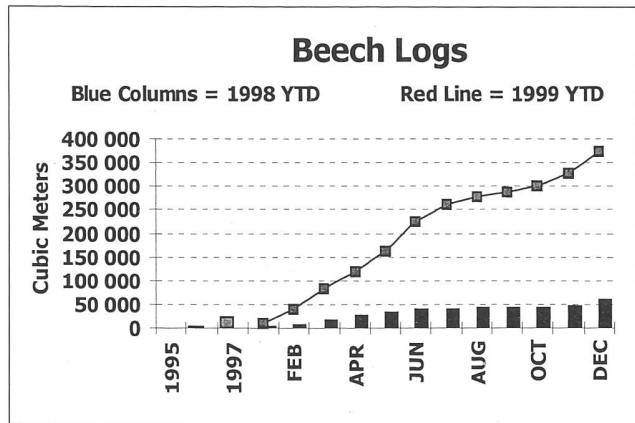
2.4 Socioeconomic implications

Finally, the implementation of the NFCP will also have an inevitable negative impact on the fiscal revenues of central, provincial and local government. For instance, the recent report on the impact of logging bans in China (February 2000, commissioned by the FAO regional Project GCP/RAS/158/JPN) reported that the revenue of the Sishuan province decreased by RMB 680 million (US\$ 83 million) in 1999 and by RMB 126.8 million (US\$ 15 million) for the Lijiang prefecture in Yunnan province (SFA-NFC CENTER, 2000).

It will be a difficult and complicated task to resettle or develop new income alternatives for 1.2 million forest workers, laid off as a result of the NFCP. Many of these former forestry bureau and State forest enterprise employees will certainly be redirected to new forest management, forest protection and reforestation activities. However, others will need to be retrained or put on social security benefit at the State's expense before they can find new jobs themselves. So far, most expenses related to the resettlement of laid-off workers, training and the development of alternative activities were only supported by the central government or the provinces.

3. Conclusions

The fact that the NFCP has been promulgated on the basis of ecological and social sustainability without defining precise methods creates difficulty for the Chinese government. This means that the economic consequences of the NFCP are still not well known. For instance, as indicated above, the NFCP's impact may well worsen the already precarious finances of many townships; thereby further reducing the efficiency of forest management duties previously carried out by the central government as the country further decentralizes. The extensive land margin has already been depleted in China and many farmers rely on the forest sector for their livelihood. A new focus on forest conservation will certainly have a negative effect on rural development and poverty alleviation unless corrective measures are promoted. Moreover, logging restrictions in China may well have an unwanted effect on the conservation of forests in neighboring countries and beyond.



Source: WEYERHAEUSER, China and Chinese Trade Statistics, 2000.

Therefore, enhancing the efficiency and effectiveness of this critical program for environmental conservation and sustainable economic development will require a new regulatory framework and an increased reliance on market-based instruments (including improved fiscal policies with cross-subsidies). Without adequate incentives and new regulatory instruments, participation in and support to this program may dramatically decline, as investments for forest conservation are not financially attractive, but economically vital.

4. Recommendations

4.1 Re-thinking strategies for the implementation of sustainable forestry development and forest conservation⁴

For a country in transition like China, with a population of 1.3 billion, improving the eco-environment and reducing the disparity between conservation, trade liberalization and development will not be an easy task. Enhancing the economic and environmental contributions of the forest sector will require actions on many fronts; the most important item on the agenda for the government at this juncture is to establish and enforce policies and a regulatory framework which will help maximize the benefits from the use and conservation forest resources. To achieve progress in sustainable forestry development and forest conservation, the following will be required (HEIMO, 2000):

- New policy and regulatory frameworks which would eliminate economic distortions and market failures and stimulate participation, investment and capital flow for sustainable forestry development and forest conservation. This involves:
 - Revising macroeconomic policies that have an adverse effect on forests.
 - Getting the right price for timber by eliminating timber price subsidies and marketing barriers.
 - Promoting tariff and non-tariff incentives to encourage forest industries to adopt more environmentally-friendly technologies and increase domestic processing efficiency.
 - Linking resource prices to management performance.
 - Reducing the hardship of taxes and fees and creating more consistent property rights.

These are crucial to stimulate efficiency and sustain public and private investment in the forest sector. Additional sector research and analysis is therefore recommended to clarify the rights and responsibilities in forest management and exploitation; inspire the confidence of investors, forest planters and other forest entrepreneurs; support direct market access for timber, lumber and other forest products; create market-based reforestation and conservation incentives; and legally authorize programs for the conservation of forests and biodiversity.

- An increase in government funding for sustainable forestry development and biodiversity conservation. As the availability of public domestic funding for sustainable forestry development and forest conservation is likely to decrease in the short run, the Chinese government must set up a better fiscal framework and more incentive schemes. These could help adjust incorrect pricing mechanisms, capture a much larger share of the economic rent from forest resources, improve the way financial income from forestry taxes and levies is used, and promote the regular flow of finance to small forest managers and communities, which

would enhance their participation in national conservation programs.

- Promote financial/trade mechanisms to enhance ecological services. A wide array of new mechanisms and actions have recently been proposed and/or developed to come up with effective solutions to the problem of sustainable forestry development. These include: «green» funds to encourage and support sound environmental and forest conservation projects; preferential tax rates for forest companies taking environmental protection measures; new investment mechanisms to channel domestic savings into forest conservation activities; innovative mechanisms to compensate communities whose forest usage is being restricted for global environmental benefits; and green criteria for loans from banks to promote local environmental industries built on traditional Chinese technologies. Another option that should certainly be considered by forestry policy-makers is that of Market Transformation Initiatives. These attempt to bring together interested parties to promote market approaches to sustainable forestry, reward those private companies which are voluntarily moving towards responsible forest stewardship and penalize companies that fail to respect responsible codes of conduct.

All these mechanisms and initiatives are mutually reinforcing, yet, they need a coherent framework to gain acceptance by both the government and forest industries. A re-think of strategies which enhance forest conservation will, however, require further strategic research and sector work into forest policy and economic issues. Building managerial capacity and improving information access should be central to the policy reform process. Adequate funding should therefore be provided for the development of policy research activities in support of forest conservation objectives.

4.2 Accelerating the transformation process of state-forest industries and the adoption of environmental standards

The process of transforming forest enterprises into new market-based entities promoting sustainable forest management and forest conservation is perhaps one of the biggest forestry challenges currently facing China. State forest enterprises are currently at a turning point, confronted with market realities and large financial and social liabilities. They face a legacy of forest destruction, a reduction in access to natural forests and timber as more forest land is being considered for protection, increasing competition from imports and additional costs incurred by sustainable forest management and the development of low impact activities. The current shortage of timber alongside further trade liberalization measures to meet GATT requirements should, however, provide a competitive opportunity for those enterprises investing in technologies which make use of wood waste, bamboo culms and engineered wood products, this reducing dependency on timber from natural forest. Reshaping China's forest product industry will however require the adoption of new management standards. These can contribute to both the competitiveness of state forest enterprises and environmental conservation through lower production costs, product enhancement, environmental accountability (ethical standards), business redefinition and the ability to ensure long-term and reliable sources of high quality wood products. However, the majority of medium and large state-owned forest enterprises, which are currently operating at a loss, should either be released from their social responsibilities affecting their commercial efficiency and competitiveness, or close down.

⁴ <http://www.project158.org>

Such action should be complemented by the following measures (HONG and LIN, 1999):

- Establishing regional enterprise groups for the production of leading products (e.g. wood-based panels, furniture);
- Forcing small and medium-sized forest enterprises to adapt to a market economy through reorganization, association, mergers, leasing arrangements, joint-stock cooperative systems and joint ventures;
- Promoting cooperative arrangements for township and individual enterprises;
- Restricting the production of products with high resource consumption and low economic returns and promoting high value-added products;
- Improving the utilization of residues, small diameter timber and bamboo culms;
- Fostering the importation of advanced equipment and technology to increase the ability of Chinese forest enterprises to compete with foreign products, while avoiding long-term reliance on foreign equipment; and
- Promoting financial/trade-mechanisms to enhance ecological services (green funds, preferred tax rates, green criteria for loans, etc.).

Three self-regulating and accountability systems may further improve the environmental performance of forest enterprises in response to rising government and stakeholder pressure and perception of environmental risks:

- Promoting a system of environmental management. At the enterprise level, the management tool most commonly applied is the environmental management system (EMS). EMS can help an enterprise to define its own environmental performance targets and to continually monitor and improve both targets and performance. EMS has been routinely used by large processing enterprises, but only recently by forest sector enterprises. ISO maintains a standard for the design and operation of EMS (ISO 14001), which is beginning to be used in the area of certification.
- Encouraging joint mechanisms to develop and implement voluntary codes of conduct. In recent years, groups of forest producers have formed industry associations and have prompted forestry codes of conduct. These encourage sustainable behavior, including environmental, social and economic concerns, technology transfer, education and investment and the development of accounting standards which more accurately reflect the environmental value of growing timber and the liabilities of forest enterprise. Many observers outside the business community consider that such codes are less effective in improving industry's behavior than government-organized codes of management, and less effective than certification standards. Codes of conduct are, however, a good first step for an industry to begin to improve its environmental and social practices, particularly if and when compliance with the code's principles would be verified and published by an independent audit.
- Introducing Certification. Certification is perhaps the most powerful «soft» policy instrument implemented outside government that provides forest enterprises with the incentive to manage forests well. To date, the Forest Stewardship Council (FSC) and its accredited certifiers operate the only established international system of forest management certification. Several buyers' groups, notably in Western Europe, have been set up – including large retailers – and have committed themselves to obtaining forest products solely from FSC-certified forest. To date, however, almost all the certified forestry operations are in Northern countries. These are the «tip of the iceberg» since more and

more enterprises have been through initial audits prior to certification. As certification becomes more widespread – encouraged by Northern buyers – many forest enterprises in China will have to improve their forest management and produce certified forest products to enter such markets.

5. Concluding Remarks

China's challenge of attaining sustainable forestry exceeds the country's immediate ability to finance it. As China's forest conservation agenda is an ambitious undertaking, the international community should recognize that it has a tremendous stake in the future health and sustainability of the country's forest environment. It should, therefore, be more active in providing assistance for reforms that will promote sustainable and conservation-oriented forestry. As the first international agency to assist China in implementing the NFCP, the World Bank is currently negotiating a six-year sustainable forestry development project aimed at supporting the development of sustainable management techniques in natural forests, the conservation of biodiversity of global importance in selected high priority natural reserves, and the further development of new forest resources to increase the production of timber, generate new employment and income opportunities and improve environmental management. But more still needs to be done. In particular, a more concerted effort is needed to assist China to fulfill its international environmental commitments, to accelerate the forest sector's transition to a market economy and integration into the overall economic reform process and to develop human resources to facilitate future development of the forest sector.

Summary

In spite of its impressive reforestation record which ranks China first in the world, China's forestry development program is still far from meeting the country's national economic and social development needs. With a total forest area of about 134 million hectares and a standing volume of 11.8 billion cubic meters, total forest resources are insufficient, and the natural forest resources available for harvesting are almost exhausted. Furthermore, forest management is too extensive and forest infrastructure development inadequate to meet the needs of modern forestry development. The heavy tax burden and complexity of the tax system remain major impediments to the full participation of farmers in sustainable forestry development and forest conservation activities. Property rights issues continue to be problematic as farmers are still uncomfortable with the often inconsistent and volatile policy changes. Furthermore, the structure, scale and pattern of forest industries are somewhat irrational, and enterprises still depend upon state support and are requested to take on heavy social burdens. The secondary and tertiary forest industries are seriously stagnant with low levels of processing efficiency.

All these factors have seriously damaged the structure and ecological functions of natural forests. Over the last 50 years, China's ecological environment has deteriorated at high speed and ecological disasters have occurred more frequently as all over China, the ability of forests to prevent erosion and conserve water has greatly decreased. Prompted by the floods in the reaches of the Yangtze River in August 1998, the Chinese government now clearly recognizes the importance of protecting natural forests. The reduction of natural forest resources and the deterioration of the ecological environment in the major watersheds are now both restricting the country's social and economic development. Consequently, conserving natural forests, banning the harvesting of natural forests in the upper

and middle reaches of the main rivers, afforesting mountains and returning converted forestland to forestry are now listed as priorities for the government which launched the Natural Forest Conservation Program (NFCP), and as urgent tasks for the forest sector.

However, in a country with a population of 1.3 billion, improving the eco-environment and resolving the disparity between conservation and development will not be an easy task. Due to the implementation of the NFCP, China's timber supply deficit is expected to increase from 5 million m³ in 1997 to about 25 million m³ in 2003, thus further affecting domestic wood-processing enterprises as well as the availability of fuelwood and non-timber forest products in areas already prone to poverty. As a result, many State-owned forest enterprises may not survive in a competitive environment, which will be further boosted by trade liberalization induced by China's admission to the WTO.

The current shortage of timber alongside further trade liberalization measures should, however, provide a competitive opportunity for those enterprises investing in technologies which make use of the wood waste and engineered wood products that reduce the dependency on timber from natural forests. As a result, more research is needed to reshape China's forest product industry. It is essential to assess the conditions under which sustainable forestry, in tandem with adequate management and good business practices, can contribute to both the competitiveness of state forest enterprises and environmental conservation through lower production costs, product enhancement, environmental accountability (ethical standards), business redefinition and the ability to ensure long-term reliable, high quality sources of wood.

Résumé

Réduire les exploitations forestières en forêts naturelles: un nouveau défi pour le développement des industries forestières en Chine

En dépit des résultats remarquables acquis en terme de reforestation, qui placent la Chine au premier rang mondial, le développement du secteur forestier n'est plus à même de subvenir aux besoins du rapide développement économique et social du pays. Avec une superficie forestière de 134 millions d'hectares et un volume sur pied de 11,8 milliards de m³, les ressources forestières naturelles disponibles sont insuffisantes et pratiquement déjà toutes surexploitées. De plus, les pratiques d'aménagement forestier sont restées très extensives et les infrastructures forestières insuffisantes pour répondre aux besoins d'une sylviculture moderne. La participation de la population aux activités forestières reste encore freinée à la fois par une fiscalité forestière lourde et complexe et par un cadre foncier inadéquat qui ne répond plus aux attentes des populations. Enfin, malgré les réformes en cours, la structure du tissu industriel forestier, hérité de l'époque de l'économie planifiée, n'est plus adaptée aux conditions de l'économie de marché. Demeurées dépendantes du soutien financier de l'Etat par le truchement de subventions et grevées de charges sociales et dettes considérables, les entreprises forestières chinoises n'ont pas encore atteint un niveau de compétitivité adéquat, particulièrement les industries forestières de seconde et troisième transformation.

Tous ces facteurs ont été et sont encore à l'origine de dommages sérieux à la structure et aux fonctions écologiques des forêts naturelles. Au cours des cinquante dernières années, l'environnement écologique de la Chine s'est rapidement détérioré entraînant une recrudescence des désastres naturels occasionnés par la diminution des fonctions protectrices des forêts due à leur surexploitation. Conséquence des inondations catastrophiques survenues dans la vallée du Fleuve Jaune en août 1998, le Gouvernement, en mettant en œuvre un nou-

veau programme spécifique de conservation des forêts naturelles, a reconnu l'importance qu'il y avait de protéger les forêts naturelles des grands bassins versants du pays comme garant d'un développement socio-économique durable et soutenu. Ce programme comprend à la fois des mesures visant à restreindre l'exploitation forestière dans les principaux bassins versant du pays, reboiser les montagnes dénudées et les exploitations agricoles dans des zones sensibles et développer des activités économiques alternatives pour compenser les effets négatifs d'un tel programme.

Cependant, dans un pays de 1,3 milliards d'habitants en pleine croissance économique, améliorer les conditions écologiques et harmoniser les contradictions existant entre conservation et développement n'est pas une tâche facile. Conséquence du nouveau programme de protection des forêts naturelles, il est prévu que le déficit en bois rond industriel du pays atteigne 25 millions de m³ en 2003 contre 5 millions en 1997. Un tel déficit, qui devra être compensé par des importations, n'ira pas sans affecter de manière importante les industries forestières du pays et le marché des produits forestiers, y compris l'approvisionnement en bois de chauffe et autres produits forestiers des populations des régions les plus pauvres. Corollaire de cette situation, de nombreuses entreprises forestières locales ne seront encore moins à même de survivre dans un environnement compétitif encore plus exacerbé par l'adhésion de la Chine à l'OMC.

Le déficit actuel en bois industriel et l'abaissement des barrières douanières devraient cependant offrir des opportunités nouvelles de développement aux entreprises forestières chinoises, en particulier celles qui seraient à même d'investir dans des technologies de transformation appropriées permettant d'usiner des bois de moindre qualité, bambous et autres résidus forestiers. Cette nouvelle direction devrait à la fois leur permettre de réduire leur dépendance des sources d'approvisionnement traditionnelles et d'offrir des produits transformés de haute qualité. Mais réhabiliter le secteur industriel forestier chinois devrait aussi nécessiter une redéfinition des conditions cadre de leur développement tenant compte aussi bien des besoins de gestion durable et conservation du patrimoine forestier et que des pratiques modernes de gestion d'entreprise conformes aux principes de l'économie de marché. Ce nouveau développement devrait leur permettre de diminuer leurs coûts de production et leurs charges sociales et de ce fait améliorer leur compétitivité.

Zusammenfassung

Trennung von Naturwald und Produktionswald: Eine neue Herausforderung für die Entwicklung der Wald- und Holzwirtschaft in China

Trotz der Tatsache, dass China weltweit mit seinen Aufforstungsprogrammen an erster Stelle liegt, sind die wirtschaftlichen und sozialen Entwicklungsbedürfnisse der chinesischen Forstwirtschaft noch lange nicht abgedeckt. Mit einer Gesamtfläche von 134 Millionen Hektaren Wald und einem Holzvorrat von 11,8 Milliarden Kubikmeter genügen die gesamten Waldressourcen bei Weitem nicht; die natürlichen Waldressourcen, die für die Holzernte zur Verfügung stehen, sind fast ausgeschöpft. Die Forstwirtschaft wird darüber hinaus zu extensiv betrieben. Die forstliche Infrastruktur reicht nicht aus, um die Bedürfnisse einer modernen Forstwirtschaft abzudecken. Dazu kommt, dass die hohe Steuerbelastung und das komplexe Steuersystem die Bauern daran hindern, sich aktiv an einer nachhaltigen Forstwirtschaft und am Schutz der Wälder zu beteiligen. Auf Grund der sich immer wieder ändernden Politik bleiben auch Eigentumsfragen problematisch. Zusätzlich sind die Strukturen in der Holzindustrie nicht sehr rational gegliedert. Die Unternehmen sind von staatlichen Unterstützungsbeiträgen abhängig, und es wird von ihnen erwartet,

hohe soziale Belastungen in Kauf zu nehmen. Die sekundäre und tertiäre Holzindustrie bleiben mit ihrer sehr schwachen Verarbeitungseffizienz stark stagnierend.

Diese Faktoren haben zu schwerwiegenden Schäden der Struktur und der ökologischen Funktionen der natürlichen Wälder geführt. Während der letzten 50 Jahre hat der Zustand der Umwelt in China stark gelitten. Ökologische Katastrophen trafen in ganz China in kürzeren Zeitabschnitten immer öfter ein. Die Fähigkeit der Wälder, Erosionen zu verhindern und Wasser zurückzuhalten, hat stark abgenommen. Nach den Auswirkungen der Überschwemmungen des Jangtse im August 1998 hat die Regierung die Bedeutung von schützenden natürlichen Wäldern erkannt. Sowohl die Reduktion der natürlichen Waldressourcen als auch die Verschlechterung der Umweltsituation in den wichtigsten hydrographischen Einzugsgebieten sind zu einschränkenden Faktoren für die soziale und ökonomische Entwicklung des Landes geworden. Aus diesen Gründen werden die folgenden Massnahmen der Regierung, die ein Programm zum Schutz der natürlichen Wälder, das «Natural Forest Conservation Program (NFCP)», lanciert hat, als hoch eingestuft und stellen für den Forstsektor eine sehr wichtige Aufgabe dar: Der Schutz von natürlichen Wäldern, das Verbot der Holzernte in natürlichen Wäldern in den Ober- und Mittelläufen der Hauptflüsse, die Wiederaufforstungen in Berggebieten, das Zurückführen von forstlich entforestem Land in die Forstwirtschaft.

In einem Land mit 1,3 Milliarden Einwohnern stellt aber die Verbesserung des ökologischen Zustandes der Umwelt sowie die Harmonisierung der diametral entgegengesetzten Ziele von Schutz und Entwicklung keine einfache Aufgabe dar. Auf Grund des lancierten Schutzprogramms NFCP wird geschätzt, dass das Holzdefizit Chinas von 5 Millionen Kubikmetern im Jahre 1997 auf etwa 25 Millionen Kubikmeter im Jahre 2003 steigen und dadurch die nationale Holzverarbeitung und den Vorrat an Brennholz und anderen Forstprodukten in jetzt schon von Armut betroffenen Regionen weiter beeinträchtigen wird. Die Liberalisierung des Handels nach der Aufnahme Chinas in die WTO wird zusätzlich das Überleben vieler staatlicher Unternehmen in einem konkurrierenden Umfeld in Frage stellen.

Der heutige Holzangel in Verbindung mit weiteren Massnahmen zur Handelsliberalisierung sollte aber konkurrierenden Unternehmen, die in Technologie investieren, Holzabfälle verwerten und von natürlichen Waldressourcen unabhängige Holzprodukte herstellen, Erfolg gewährleisten. Die Restrukturierung der chinesischen Holzindustrie muss noch weiter untersucht werden, damit die Bedingungen beurteilt werden können, unter denen eine nachhaltige Forstwirtschaft zusammen mit angemessenem Management und guter Unternehmenspraxis möglich wird. Ein Nebeneinander von staatlichen Forstbetrieben und Umweltschutz sollte so möglich werden durch tiefere Produktionskosten, Produktionssteigerung, Rechenschaftspflicht gegenüber der Umwelt (ethische Standards), Neufestlegung von Unternehmenspolitik sowie die Fähigkeit, verlässliche, qualitativ hochstehende Holzressourcen sicherstellen zu können.

Bibliography

- FAO. Asia-Pacific Forestry Sector Outlook Study. Country Report: China. Working Paper 14, 1997.
- HEIMO CLAUDE. A Strategy to Improve Sustainable Forestry Development in China: A Strategy Note Based on Project 158 Achievements, 2000 (under publication).
- HONG JUSHENG and LIN FENGMIN. Development of China Wood Industry. Project Document, 1999.
- KONG FANWEN, XIE CHEN and DAI GUANGCUI. Evaluation of China's Forest Resources Management Policy in the Context of a Market Economy, Project Document, 1998.
- SFA-NFC CENTER: Analysis of State-Owned Industrial Forest Enterprises' Assets Distribution and Operations in China, Forestry Economics Volume 4/1, 1999.
- SFA-NFC CENTER. Study on Removing Natural Forests from Timber Production as a Strategy for Conserving Forests in China, SFA/FAO Draft Document, 2000.
- WAGGENER THOMAS. Status of forest Products Pricing under Reforms towards Market Economies: China, Mongolia, Myanmar and Vietnam. Project Document, 1998.
- WANG QIANJIN *et al.* Future Approach to Orientation of Forestry in China in the Context of a Market Economy. Project Document, 1999.
- ZHANG LEI. Status of Forest Land Allocation and Land Arrangement and Management of the Forest Resource Base. Project Document, 1998.

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